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Remarks:

Claims 1 and 5 have been amended and claims 16-30 were previously withdrawn. Accordingly, claims 1-15 and 31 are currently pending for consideration.

I. Amendments:

Amended claim 1 now recites that the polysaccharide has a first cationic or anionic substituent having an aromatic group. Support for amended claim 1 can be found throughout the specification and, more specifically, at page 4, lines 2-13; page 7, lines 25-27; page 8, lines 34-36; and page 9, lines 10-32. Accordingly, no new matter has been added.

Amended claim 5 has been amended to correct a typographical error. Again, no new matter has been added.

II. The Invention:

The presently claimed invention is directed to a process for the production of paper from an aqueous suspension containing cellulosic fibres, and optionally fillers.

The process includes adding to the suspension a cationized polysaccharide product which includes a polysaccharide having (i) at least one first cationic or anionic substituent having an aromatic group and (ii) at least one second substituent having no aromatic group, and forming and draining the suspension on a wire. The molar ratio of the first substituent to the second substituent is from 10:1 to 1:10, preferably 7:1 to 1:7.

The combination of aromatic and non-aromatic substituents in specific ratios, as presently claimed, results in improvements in burst strength index, dewatering time and/or retention.

III. Rejections:

Claims 1-10, 13-15 and 31 stand rejected under 35 U.S.C. § 102(b), as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as being obvious over, Persson et al (WO 99/55964). The Applicants respectfully traverse.

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Persson et al. is directed to a process for the production of paper from a suspension, which includes adding to the suspension a drainage and retention aide that includes a cationic or amphoteric polysaccharide, and forming and dewatering the suspension on a wire. The cationic polysaccharide has a hydrophobic group.

Nowhere do Persson et al. disclose a process for the production of paper from a suspension, which includes adding to the suspension a cationized polysaccharide product which includes a polysaccharide having (i) at least one first cationic or anionic substituent having an aromatic group and (ii) at least one second substituent having no aromatic group, wherein the molar ratio of the first substituent to the second substituent is from 10:1 to 1:10, as presently claimed in amended claim 1.

At page 4, the Office Action identifies one embodiment of Persson et al. that discloses non-aromatic substitution by a cationic agent, i.e., halohydroxypropyltrialkylammonium halide which is of the general formula (II) of the present invention and aromatic substitution by a non-ionic agent being an aralkyl halide such as benzyl chloride. However, this aromatic substituent is not cationic or anionic as required in amended claim 1.

The Office Action also identifies another embodiment of Persson et al. that discloses aromatic substitution by a cationic agent being N-dialkyl-N-aralkyl ammonium halide or N-(3-chloro-2-hydroxypropyl)-N-benzyl-N,N-dimethyl ammonium chloride, which are of the general formula (I) of the present invention. However, there is no teaching or suggestion by Persson et al. of non-aromatic substitution together with this aromatic substitution.

Consequently, there is no disclosure in Persson et al of the presence of a polysaccharide having both a first cationic or anionic substituent having an aromatic group and a second substituent having no aromatic group, as presently claimed. Thus, for this reason, amended claim 1 is not anticipated or rendered obvious by Persson et al..

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Moreover, the use of both the first and second substituents provides unexpected results. In that regard, Example 2 (Table 1) of the present invention clearly shows that when comparing the performance of : 1) Ref.3, i.e., a cationic starch being made by reacting native starch with a cationic aromatic agent (represented by 3-chloro-2-hydroxypropyl dimethyl benzyl ammonium chloride); and 2) the invention, i.e., a cationic starch made by reacting native starch with a cationic aromatic agent (represented by 3-chloro-2-hydroxypropyl dimethyl benzyl ammonium chloride) and a non-aromatic agent (represented by 2,3-epoxypropyl trimethyl ammonium chloride), the cationic starch according to the invention gives much better results in terms of Burst Strength Index Increase.

Therefore, it is respectfully submitted that the present invention shows unexpected results for a process using the polysaccharide, as presently claimed.

Accordingly, it is respectfully requested that the rejections of claims 1-10, 13-15 and 31 under 35 U.S.C. § 102(b), as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as being obvious over, Persson et al (WO 99/55964) be withdrawn.

Claims 1-9, 11-15 and 31 also stand rejected under 35 U.S.C. § 102(b), as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as being obvious over, U.S. Patent No. 6,818,100 to Lindgren et al. (hereinafter "Lindgren et al."). The Applicants respectfully traverse.

Lindgren et al. is directed to a process for sizing paper that includes adding to an aqueous suspension containing cellulosic fibers, and optional fillers, a sizing dispersion that includes a polymer having an aromatic group, and a sizing promoter having including a polymer having an aromatic group, wherein the sizing dispersion and sizing promoter are added separately.

Nowhere does Lindgren et al. disclose or suggest a process for production of paper from an aqueous suspension, which includes adding to the suspension a cationized polysaccharide product which includes a polysaccharide having (i) at least

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one first cationic or anionic substituent having an aromatic group and (ii) at least one second substituent having no aromatic group, wherein the molar ratio of the first substituent to the second substituent is from 10:1 to 1:10, as presently claimed in amended claim 1.

At pages 6-7, the Office Action identifies one embodiment of Lindgren et al. that discloses non-aromatic substitution by a cationic agent, i.e., halohydroxypropyltrialkylammonium halide which is of the general formula (II) of the present invention and aromatic substitution by a non-ionic agent being an aralkyl halide such as benzyl chloride. However, this aromatic substituent is not cationic or anionic as required in amended claim 1.

The Office Action also identifies another embodiment of Lindgren et al. that discloses aromatic substitution by a cationic agent being N-dialkyl-N-aralkyl ammonium halide or N-(3-chloro-2-hydroxypropyl)-N-benzyl-N,N-dimethyl ammonium chloride, which are of the general formula (I) of the present invention. However, there is no teaching or suggestion by Lindgren et al. of non-aromatic substitution together with this aromatic substitution.

Moreover, as discussed above with respect Persson et al., the use of both the first and second substituents according to the invention provides unexpected results.

Accordingly, it is respectfully requested that the rejections of claims 1-9, 11-15 and 31 under 35 U.S.C. § 102(b), as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as being obvious over, Lindgren et al., be withdrawn.

Claim 10 also stands rejected under 35 U.S.C. § 103(a), as being obvious over Lindgren et al. in view of Persson et al.. The Applicants respectfully traverse.

For the reasons discussed above in response to the rejections based on Persson et al. and Lindgren et al., the applicants respectfully submit that neither

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Persson et al. nor Lindgren et al., when read individually or together, disclose, teach or suggest a process for the production of paper from a suspension, which includes adding to the suspension a cationized polysaccharide product which includes a polysaccharide having (i) at least one first cationic or anionic substituent having an aromatic group and (ii) at least one second substituent having no aromatic group, wherein the molar ratio of the first substituent to the second substituent is from 10:1 to 1:10, as presently claimed in amended claim 1.

As claim 10 depends from claim 1, and includes all the limitations of claim 1, it is respectfully submitted that claim 10 is not obvious over Lindgren et al. in view of Persson et al. for the reasons discussed with respect to claim 1.

Accordingly, it is respectfully requested that the rejection of claim 10 under 35 U.S.C. § 103(a), as being obvious over Lindgren et al., in view of Persson et al., be withdrawn.

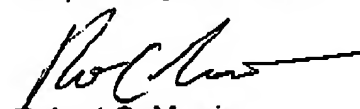
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Conclusion:

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In light of the foregoing, Applicants respectfully submit that the application as amended is now in proper form for allowance, which action is earnestly solicited. If the Examiner has any questions relating to this Amendment or to this application in general, it is respectfully requested that the Examiner contact Applicants' undersigned attorney at the telephone number provided below.

Respectfully submitted,


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